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Enrichment Clusters: Educating for the Real World

LYUTSIYA ADILZHANOVA, ULYANA IXANOVA, AND ALYONA KAUS

Over the last three decades, there has been a dramatic change in the expectations the society holds about compulsory education. Contemporary education is expected to cultivate high-order thinking as well as to develop life skills and functional literacy in school graduates. However, public satisfaction and student performance on international testing are far below these expectations. Enrichment clusters (EC), which are group projects aimed to connect students to address real-life issues, could be an alternative solution to bridge the theoretical knowledge and practical skills that schools provide. This paper, therefore, aims to justify the importance of life skills education, to highlight the necessity to improve the quality of Kazakhstani secondary education, to compare two current models of life skills education, and to argue for EC to become an integral part of the secondary school curriculum to promote functional literacy.

Keywords: secondary education, life skills, enrichment clusters, functional illiteracy, policies, service learning, curriculum.

Introduction

The issue of quality education has been on the agenda of many countries. To address the issue, a new project “Education-2030” was initiated by United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations International Children’s Emergency Fund (UNICEF) and many others. It emphasizes the importance of quality education and aims to prepare learners to live in the challenging conditions of the modern world. The concept of quality education implies “the acquisition of the foundational skills of literacy and numeracy as well as analytical, problem-solving and other cognitive, interpersonal and social skills” (Incheon Declaration, 2015, p. iv). To comply with these new requirements for education, the State Program of Education Development in the Republic of Kazakhstan for 2011–2020 envisioned formal education in the country as follows:

formation of an intellectually, physically and spiritually developed citizen of the Republic of Kazakhstan in general education institutions, satisfying his/her needs in obtaining an education, ... to ensure success in a rapidly changing world; development of competitive human capital for the economic prosperity of the country. (MES, 2010, p. 11)

Recently, the President of Kazakhstan Nursultan Nazarbayev emphasized the necessity to develop “critical thinking abilities and skills of independent search for information,” which should become the primary focus of education system (Nazarbayev, 2017, The 4th priority). Therefore, to meet the requirements the modern society holds for its citizens, no longer is it enough for a learner to acquire a set of factual data, but rather build upon their knowledge, deepen and broaden it, as well as to make informed decisions in critical situations (Talbert & McLaughlin, 1993). This discussion has had global consequences, which are now evidenced in Kazakhstani education policy.

In other words, today school graduates must be able to connect theoretical knowledge they received at school to handle real-world challenges. It is for the schools to provide them with learning opportunities which align academic knowledge and meaningful real-world practice. This is the way school systems may equip students with competencies and skills necessary for a successful career and future wellbeing. Failure to address the issue may create a generation of citizens, who will struggle to respond to the challenges of the world they live in.

Life Skills Education

Research to date suggests that changes in educational goals prompted a shift from knowledge-transmission education to more flexible, student-centered approach (Bar-Yam et al., 2002). When learners are encouraged to ‘discover’ concepts for themselves and recognize their relevance and practical application, it allows them to make better progress and to be more motivated in their studies (National Research Council, 2000; Shaffer & Kipp, 2010). In the attempt to bridge the gaps between concepts studied at school and the world beyond, many countries have turned

to the idea of life skills education. Prajapati, Sharma, and Sharma (2017) explain that life skill education has been made compulsory in India, and their research demonstrates the effectiveness of this approach in equipping students with the skills needed for their future life. This strategy demonstrated the advance in the development of students' thinking and problem-solving skills, as well as acquiring functional skills. Wilson (2005), however, cautions that studying certain vocational subjects is not always enough to provide students with universal skills needed for any kind of work. The experience of some African countries, namely Ghana, might be taken as an example, where the initial attempt to introduce vocational subjects to solve the issue of students' unpreparedness for real life turned out to be inefficient and was later changed from teaching vocational subjects to developing "easier-to-re-contextualise competencies" (Akyeampong, 2014, p. 220). Still, Akyeampong (2014) argues that changing the emphasis in curriculum documents from vocational to skill-based development is not enough; teachers as change agents have to know and apply pedagogical practices aimed at enhancing those skills.

The World Health Organisation (WHO) defines life skills as "abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life" (WHO, 1997, p. 1). The idea of life skills education is built upon central principles of Bandura's socio-cognitive theory, which argues that children learn by observing and processing information, actively participating in the creation of the environment around them (Woolfolk & Kolter, 2013; WHO, 1997). Life skills education aims to develop such cognitive skills as critical and analytical thinking, problem solving, creativity and collaboration together with the abilities to be flexible, initiative, responsible and productive (Trilling & Fadel, 2009). In the life skills oriented classroom, children are active participants in teaching and learning process, where actual practice of skills is of utmost importance (WHO, 1997).

Trilling and Fadel (2009) argue that when life skills are introduced as a part of the curriculum, students become much more motivated and engaged. Besides that, not only does life skills education develop students' high-order thinking and decreases school dropout level, it also has a positive effect on students' employability, thus minimizing the gap between supply and demand in the job market (Kagan, 2003; WHO, 1997).

Urgency for Kazakhstan

Kazakhstan also recognizes the necessity of preparing students for the demands of the 21st century. According to data collected in 2012, student enrolment in the country's secondary institutions constituted 97.7 percent, which was 17.8 percent higher than the world average of 79.9 percent (MES, 2016, p. 25). Despite such a high student coverage ratio, public satisfaction with school education in Kazakhstan is lower in comparison to the world average ratio: nearly half of the population (43.9%) is dissatisfied with the quality of education they receive (MES, 2016, p. 25, see Table 1). In particular, an increasing number of citizens believe that school does not cultivate the knowledge required in the modern economy and labor market (MES, 2014).

Table 1. Secondary education coverage and satisfaction in Kazakhstan in 2012 (MES, 2016, p. 25)

Education	Kazakhstan ratio	World average ratio
Secondary education coverage	97.7%	79.9%
The level of positive satisfaction with the current education	56.1%	65%

A recent global competitiveness report states that although Kazakhstan is rated 42nd by the secondary education enrolment, it is only 76th by the quality of the education the country provides (Schwab, 2015). We may assume that knowledge and competences received at school do not correspond to the demands of a new century. Schools provide knowledge-based education, where students are not taught to apply knowledge in practice; in other words, they lack functional literacy. The PISA 2015 results support this claim: Kazakhstani students demonstrate a low level of functional literacy in reading, science, and math (MES, 2017). 41.3 percent of Kazakhstani learners were found to be functionally illiterate in reading, meaning they could only complete tasks related to first-level complexity; 28 percent and 32.1 percent were functionally illiterate in science and math respectively (MES, 2017).

Alarmingly, the percentage of Kazakhstani students who coped with medium-complexity tasks on low-order thinking skills was twice lower in comparison with other OECD countries, such as Singapore, China, and Estonia (MES, 2017). According to the data PISA provides, in Singapore more than 75 percent of 15-year-olds were able to complete second-level tasks, while in Kazakhstan around 35 percent of learners succeeded to give correct answers for tasks with the same level of complexity (MES, 2017).

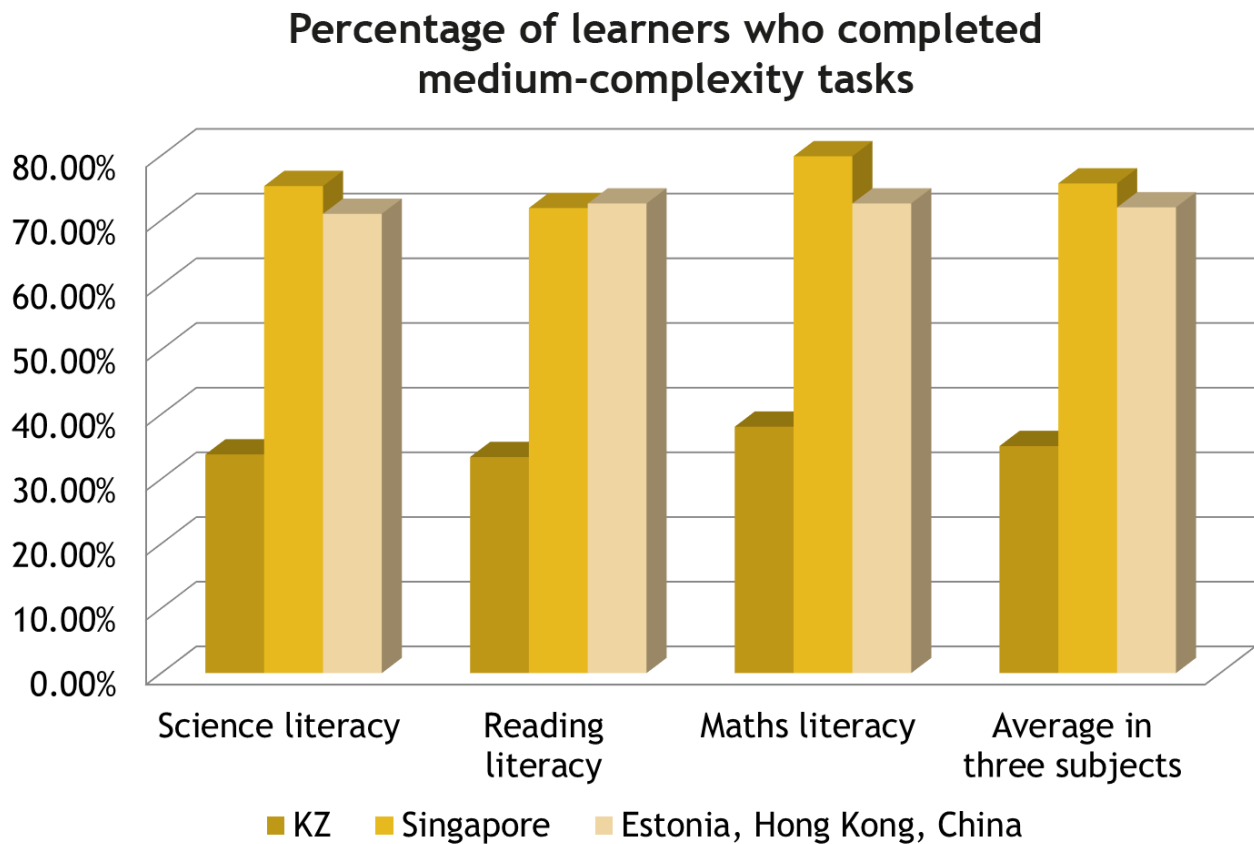


Figure 1. Percentage of students completing medium-complexity tasks in Kazakhstan and OECD countries (MES, 2017)

Analysis of all six levels of task complexity reveals that the percentage of students who were able to complete the task successfully decreases as the level of task complexity goes up. Only 1.8 percent of participants demonstrated the mastery of the fifth and sixth levels, which refer to high order thinking skills and problem solving (MES, 2017).

Figure 2 shows that within Kazakhstani secondary institutions most of the students demonstrate a low level of thinking skills, which mainly focus on data memorization. However, when learners are asked to solve tasks which require problem-solving, analysis, critique and synthesis of information, the number of those who are capable of performing such tasks falls dramatically.

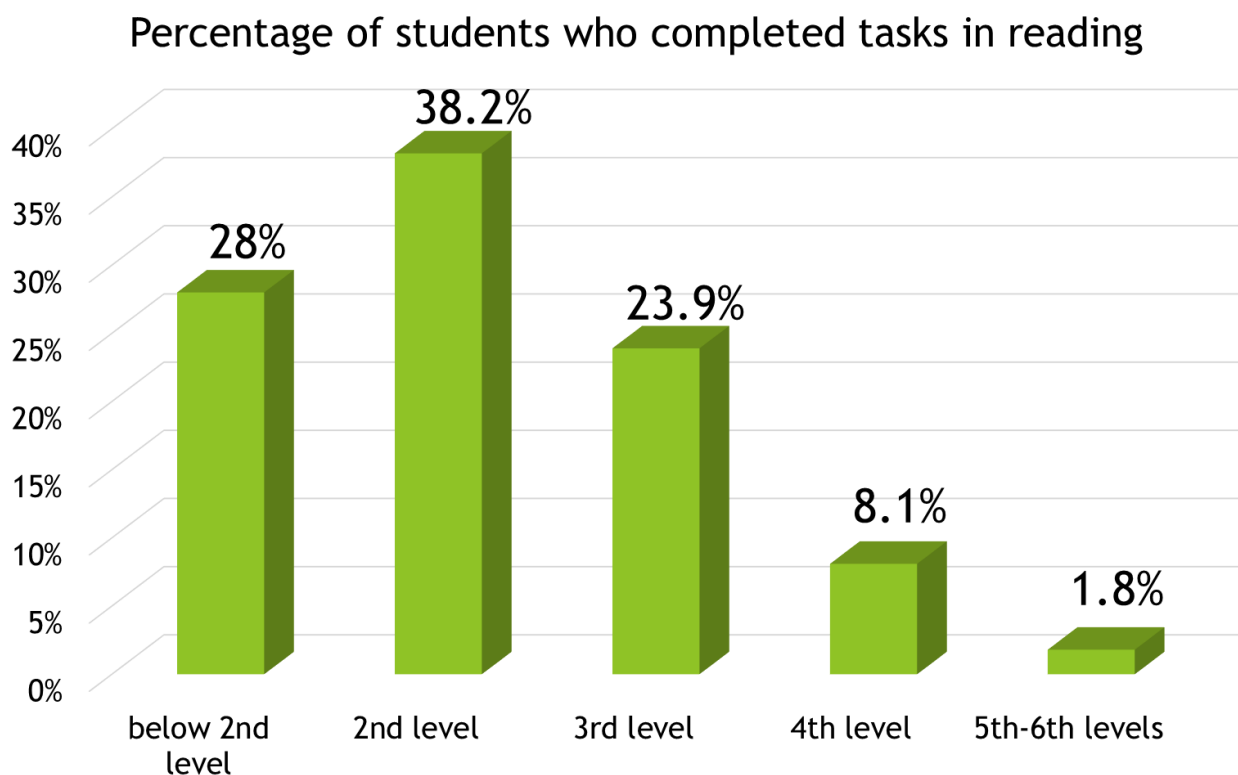


Figure 2. The percentage of students successfully completing science tasks in six levels of complexity (MES, 2017)

The evidence mentioned above illustrates the fact that students are not prepared to tackle the challenges and issues of the real world, justifies the need for curriculum modernization, and stresses the urgency to introduce changes to the existing system of education.

Existing Policies in Kazakhstan

To improve the quality of education in the country, increase the number of functionally literate children, and better prepare school graduates for their future life and career, Kazakhstan has already initiated two state-wide reforms. They are updating of the secondary education curriculum and transitioning to the 12-year school model.

Updating of the secondary education curriculum

In 2015, the process of updating the curriculum of secondary education was launched in the first grades of 30 pilot schools (MES, 2017, p. 216). The monitoring of new curriculum approbation has shown a significant difference in learners' achievement between pilot and control schools. The average score of learners' achievement in pilot schools was equal to 137.7 points, which is 7.3 points higher than the average learners' score in control schools of 130.4 points (MES, 2016). Although these results illustrate a positive trend in learners' knowledge acquisition, it will take 11 more years to assess the efficiency of this policy and investigate whether the students have developed high-order thinking and problem-solving skills. This initiative is undoubtedly effective in the long-term; however, it does not provide the immediate result in students' achievement of life skills.

12-Year model of education

The rationale for the 12-year model of education lies in the necessity to add one more academic year to provide the gradual shift from knowledge-based learning towards competence-based one (MES, 2016). The choice to introduce this model is based on the need to align Kazakhstani secondary education system with the world standards as well as to equip learners with more skills and competencies required to tackle real-life problems. This model is to be implemented in tandem with the updated curriculum. Therefore, the process will be arduous and time-consuming.

It is highly likely that these governmental initiatives will soon bring changes into the country's secondary schools. However, implementing such complex country-level policies is a laborious process. Innovative practices at the school level are believed to trigger more rapid changes in the current situation. Therefore, such approaches as enrichment clusters (EC) and service learning implemented at school may become an alternative to address the issue of low functional literacy among Kazakhstani learners in the nearest future.

Enrichment Clusters

EC is a method designed to provide a learning experience to students while exposing them to various topics which are usually not covered by the regular curriculum (Renzulli & Reis, n.d.). Students who share a common interest meet regularly under the supervision of a teacher who shares their interest and is willing to develop mastery in the field while applying “inductive and cooperative approaches to problem-solving and higher order thinking skills” (Allen, Robbins, Payne, & Brown, 2016, p. 84). Both students and teachers are eager to participate as they are able to pursue an area of their own interest. This method implies authentic learning which takes place while students engage in solving a real-life problem by coming up with a new product or developing new information (Renzulli, n.d.). The concept of EC originates from the Schoolwide Enrichment Model, which was developed by Joseph Renzulli in order to promote independent and active learning (Renzulli, Gentry, & Reis, 2007) at the end of the 20th century. Some examples of EC include students mastering sewing while hemming aprons for the cafeteria employees or a group of students taking care of a vegetable garden in the school and learning about nutrition, gardening and making a difference in their community (Allen et al., 2016). Or it can be a collaboration between students and local experts with the aim of creating shade on the school playground, the result of which became a community project which involved students and their families who came together to plant shade trees (Allen et al., 2016).

In the USA, a considerable number of schools from elementary to high school levels have successfully adopted this model (Reed & Westberg, 2003; Renzulli, Gentry, & Reis, 2007). There is an increasing interest towards the concept of EC from professionals worldwide. Originally developed as a model of learning which targets gifted learners, it has proved itself as a way to engage learners from economically, culturally and linguistically diverse backgrounds (Allen et al., 2016). Thus, while students who were already identified as ‘gifted’ might benefit from the method, research has shown that other students are more likely to manifest their ‘giftedness’ and be noticed as ‘gifted’ within such a method (Kloosterman as cited in Allen et al., 2016). In other words, ECs have manifested themselves as “providing challenging learning experiences for *all* students” (Allen et al., 2016, p. 88, emphasis in original).

Furthermore, ECs provide opportunities for students to engage in tackling real-life problems relevant to them; at the same time, such activities develop their high-order thinking skills and boost their intrinsic motivation (Allen et al., 2016). Students have a chance to develop competencies such as self-efficacy, creativity, and teamwork (Renzulli, 2000), all of which are considered essential life skills of the 21st century. Allen et al. (2016) explain that in the process of showcasing the results of learning within enrichment clusters method, schools organize enrichment cluster fairs and invite parents, teachers, other students and community representatives where students take the lead in educating the attendees about the cluster. Their qualitative case study with culturally diverse elementary students engaged in EC at an elementary school in the US reported that students' communication skills improved as a result of such experience.

Also, ECs allow involving a school's parent body as experts or consultants, as well as audience members when students demonstrate the results of their learning, which is beneficial for all parties and enhances the parent-school relationship (Allen et al., 2016). This approach is supported by research demonstrating that students' learning is positively affected by stronger connections between a family and school (Allen et al., 2016; Shaffer & Kipp, 2010).

The themes for enrichment clusters might differ according to students' and teachers' interests and vary from video production, poetry, human development, medicine, music, architecture, ancient civilizations, photojournalism and singing to culinary art, graphic design, storytelling, scrapbooking, culture studies, sports and animals (SAR Academy, 2011). When students are engaged in a cluster, the learning might happen within a particular discipline or may be interdisciplinary; regardless, it

happens in stages of planning, problem-solving, administering, time use, cooperation, and making decisions (Renzulli, 2000). Teachers and students work collaboratively in order to plan for enrichment clusters, to set weekly goals for their work, to establish a problem within a cluster and to come up with a final solution, and present the ultimate result of their learning (Allen et al., 2016).

However, it is necessary to realize that in order to implement enrichment clusters at schools, some investments will be needed. First, it is essential to train teachers. Ongoing professional development and support should be provided to allow teachers to successfully apply this approach in their classrooms. Second, education expenditure for professional development, as well as expenses to cover the working time of current teachers required for training might be one of the most significant disadvantages of this approach. Moreover, skilled experts in EC are necessary to be able to provide professional training and continuing support to teachers. However, Allen et al. (2016) demonstrated that when teachers are exposed to the vast number of resources on enrichment clusters and receive necessary training in innovative pedagogical approaches, it will be beneficial in their main teaching obligation, teaching their main subject.

Another disadvantage of this approach might be that it is highly time-consuming. It takes prior arrangements to introduce real-life problems to students. Teachers need to take time to build background knowledge for the cluster, to conduct research of the field and to consider possible field trips and meetings with local experts (Allen et al., 2016). Such work requires time which teachers are already limited in (Allen et al., 2016).

Service Learning

Another approach to life skills education is service learning. This is an educational approach when students reach academic goals by solving authentic problems of their communities (Wolpert-Gawron, 2016). The examples of service learning projects might include volunteering in community food pantries, hospitals, elder care facilities, municipal agencies responsible for maintenance of parks and public facilities, fundraising for counselling services or help phone lines, and tutoring younger children in the community (Berman, 2006). The teacher facilitating service-learning projects considers several factors when selecting a project: from the students' interests and access to the site to age appropriateness and project duration (Berman, 2006).

The service learning component is aligned with academic curriculum, what allows students to master "content, service information, processes, and skills throughout the project" (Berman, 2006, p. 7). Learning takes place outside the school as students interact with service providers, engage in teaching others what they learned, acquire competencies needed for successful project implementation, practice identifying the needs of the community, plan and implement a project (Berman, 2006). As students see the impact their service learning brings to the community, their learning becomes real to them (Elias, 2009).

Furthermore, a substantial body of educational research was carried out in order to investigate the positive impacts of service learning on students and their learning. Students' motivation increases; even those who have been demotivated became active agents when they felt that their learning would be beneficial to the people and community (Edutopia, 2015). The research carried out by Beyerbach, Weber, Swift, and Gooding (as cited in Epstein, 2009) demonstrates that students' engagement with community partners positively affects student learning outcomes, as well as reinforces students' attitudes toward academic subjects. Besides that, service learning has an immense impact on learners' critical thinking skills development and shapes their leadership identity as they progress through the stages of projects' management: from planning to maintaining coordination, creating community partnerships, promoting service learning in the school community and providing training to new students (Adilzhanova, 2017).

Unfortunately, service learning might have disadvantages for students and teachers. It can overload students who are already overwhelmed with an academic load of subjects and do not have enough time for outside classroom engagement required for service learning. It may also burden teachers, from significant prior and ongoing professional development to finding and establishing partnerships with the community, to supporting students' learning outside classroom location and hours. Some teachers might be intrinsically motivated to provide such experiences to students and engage on additional duties, while others might be concerned about the increase of their workload

outside the classroom. Thus, some teachers may experience job burnout which, as demonstrated by educational research, has been noticed to cause negative effects such as decreased teachers' professional motivation, lowering of the quality of their life and even prompt teachers to leave their jobs (Schwab, Jackson, & Schuler, 1986).

Table 2. *Advantages and disadvantages of the proposed alternatives to the existing policy options*

Alternative	Advantages	Disadvantages
Enrichment clusters is a model of authentic learning which takes place while students engage in problem-solving and are characterized by students' genuine interest in the topic, a necessity to solve the real-life problem by coming up with a new product or information, and address to the real-life audience (Renzulli, n.d.).	Students learn to apply their knowledge in practice and cope with real-life problems and obtain life skills for their future work. They develop creativity, communication and critical thinking skills, learn to solve problems constructively.	
	Students' motivation increases. Parent-school relationships are strengthened.	Ongoing teachers' training and support are necessary.
	Enrichment clusters method provides "challenging learning experiences for <i>all</i> students" (Allen et al., 2016, p.88) including those who can be considered 'gifted' students and those who might be considered 'challenging' ones as they are coming from economically, culturally and linguistically diverse backgrounds.	Increased education expenditure is expected on hiring skilled experts to provide training.
	Teachers are exposed to the vast number of resources on enrichment clusters and receive necessary training in innovative pedagogical approaches. This will benefit them in their main teaching obligation.	Additional workload on teachers.
Service learning is an educational approach when students reach academic goals by solving authentic problems of their communities (Wolpert-Gawron, 2016).	Students provide meaningful service to the community; deepen their knowledge by conducting research; develop critical thinking; strengthen teamwork and leadership skills.	Students may lack time and accessibility for extracurricular learning activities;
	Student motivation and outcomes improve; attitudes toward academic subjects are reinforced.	increased burden on teachers, which might negatively influence teacher efficacy and job satisfaction.

The proposed alternatives have a potential to make the curriculum more life-skills oriented. Both enrichment clusters and service learning have been shown to engage students in solving real-life problems and working collaboratively with each other and the community in order to come up with the best possible solutions. Neither method aims to replace the existing school curriculum, but instead to be integrated to the secondary curriculum in order to promote functional literacy. However, the advantages of enrichment clusters outweigh the ones of service learning. Hence, enrichment clusters appear to be more apt to promote the development of creativity, problem-solving, critical thinking, analysis, ability to work in cooperation with other members of society as well as to facilitate students' autonomy in the decision making. Also, as this model focuses on the interest of students, it increases the likelihood of its broader acceptance among students.

Policy Recommendations

Three main policy recommendations are proposed to promote successful implementation of EC.

Provide preliminary and ongoing teacher training

The research done on EC implementation at schools showed that the preliminary teacher training and ongoing support are needed to start and succeed in the project (Fiddymment, 2014; Reed & Westberg, 2003). Reed and Westberg (2003) indicated that “orientation and teachers’ meetings” were found beneficial for introducing the idea, goals, rules of EC as well as identifying topics of interest and planning activities (p. 28). Since the teachers are considered to be primary facilitators of this process (Renzulli, Gentry, & Reis, 2007), there is a need to train Kazakhstani teachers how to implement EC at school. A series of webinars should be organized to familiarize them with the concept and aims of EC, as well as to provide the detailed description of the project stages.

Allocate time for EC in the school timetable

The feature that distinguishes EC from school extracurricular activities is that “they are not mini-courses” (Renzulli, n.d., p. 4); it is a long process demanding time and constant teacher and student contribution. EC implementation might be more successful if the time allocated for EC work will be set in the school schedule. It will ensure that all students are engaged in EC clubs, that all clubs are provided with the place, and that the EC work is held timely and properly. The one-hour session a week is a reasonable suggestion as it will not interfere with the set schedule of the learning process. Moreover, teachers and students will have a week ahead to prepare for the next session, whereas the one-hour session held twice a week might add to teachers’ workload.

However, it is important to acknowledge the real-life situation of most teachers who might be already teaching more than 30 hours a week. Chances are very limited that they will appreciate the opportunity to teach EC even if it is just a one-hour weekly class. In order to overcome this issue, we recommend that EC is only suggested to those teachers who are interested in it and are willing to engage students on this learning curve. Those teachers are motivated intrinsically and most likely they will be able to successfully implement EC at school, especially in the initial stage.

In case if school administration cannot allocate the scheduled time for EC, students can meet once a week after the classes. Block scheduling and curriculum compacting might allow additional time for students to spend on the cluster of their interest. Another option is to borrow one class per month from the regular schedule to allow time for EC (Renzulli, 2000). All of the above-mentioned options are to be decided by the administration of each school and might be adjusted to the context of each school with flexibility.

Organize an EC professional community

The respondents of Fiddymment’s (2014) investigation stated that beyond teacher training the collaboration between teachers was another way of support in finding ideas and solutions. Creation of a national professional community, which should include the representatives of Kazakhstani secondary schools, would provide the additional opportunity for ongoing support, greater awareness of how EC work, facilitate exchanging experiences and resources. This EC professional community should be established as an online platform with such sections as resources and project plans, a section for volunteers and potential investors, a section for questions and answers, chat room, students’ blog or EC project gallery. EC is expected to be an alternative to governmental reforms, which can be initiated on the school level within a short period of time. Any school may start EC implementation and further share their experience with other neighborhood schools or even in a region. The group of schools applying EC may represent an EC professional community for constant experience sharing and support.

Conclusion

The public’s dissatisfaction with the quality of Kazakhstani education and the low level of functional literacy exhibited by secondary school learners has led to a governmental initiative to modernize education system through updating existing curriculum and transition of the 12-year school system. Although such reforms are highly promising in the long run, their immediate impact on resolving the issue of functional illiteracy is rather restricted and hard to measure. The development of life skills education through EC, however, not only offers further support to the modernization of the curriculum but also encourages educators to act as change agents, providing them with a tool to start developing learners’ functional skills with no delay. In addition, it provides students with opportunities to see the connections between theory and practice and to foster skills needed to be successful living on the cutting-edge.

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